Using MCH Bubble Capsules to Protect Douglas-fir from Douglas-fir Beetle Attacks

Montana Department of Natural Resources and Conservation
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MCH (MethyClycloHexanone) is an anti-aggregation pheromone, naturally produced by male Douglas-fir beetles, to disrupt beetle aggregation. Naturally, it prevents over-colonization of an individual tree. Used artificially, MCH results in beetles searching for host trees longer, ultimately increasing their mortality. MCH is synthetically produced, packaged, and used to manipulate beetle populations to our advantage.

Getting Started and Assembling Materials

1. Determine size of area to be treated and number of bubble capsules needed to treat it. Current recommendations for area protection: 30 MCH bubble capsules per acre.
2. Walk and flag perimeter of area to be treated—not a mandatory step, but may be helpful in determining proper bubble capsule placement.
3. Purchase MCH bubble capsules.
4. Obtain: Staple guns, staple hammers, or hammer and aluminum nails; and flagging, if desired.

Applying MCH Bubble Capsules

1. MCH is not a particularly hazardous material, but bubble capsules should not be punctured, and contact with liquid contents should be avoided. Rubber gloves are recommended for applying capsules. After applying, wash hands thoroughly before eating, chewing gum, etc. Other protective equipment, appropriate for working in forested environments, is recommended. Refer to and follow label instructions.
2. For small areas—about 2 acres or less—bubble capsules should be placed around perimeter of area. Spacing them about 15 feet apart will result in a 30-per acre application rate. Flag a starting point, apply a bubble capsule, pace off approximately 15 feet between application points, return to beginning. Ideally, bubble capsules should be placed on north side of tree, 6-7 feet above the ground. If that is not always possible, remember proper **spacing** is of most importance. As long as bubble capsules are evenly distributed, even if some capsules are only a few feet off the ground, MCH will be effective.
3. For areas larger than about 2 acres, once perimeter has been treated, there will be bubble capsules left over. Evenly distribute them throughout area to be protected by placing them along parallel lines transecting treated area. Lines should be about 15 feet apart, with bubble capsules spaced at 15-feet intervals along transects. Where treatment areas approximate squares or rectangles, this approach should result in fairly even application of bubble capsules. Odd-shaped units may

require slightly different spacing; but strive to cover area as evenly as possible with bubble capsules.

4. An alternative placement method, for larger areas, is to place bubble capsules on a grid throughout area to be treated. A 30-per acre application will require a grid of about 40 feet by 40 feet. Again, an even distribution of bubble capsules throughout the area is of most importance. If openings are encountered, place bubble capsules on either side opening to maintain an even distribution over entire area.
5. For areas less than ½ acre, a minimum of 16 bubble capsules should be evenly spaced around area. This will result in a slightly higher rate than 30 per acre, but is necessary to ensure complete protection.
6. Individual trees may be protected by placing 2-4 bubble capsules around tree bole at a height of 6-10 feet. Trees less than 18" dbh should be treated with 2 bubble capsules; trees 18-24" dbh with 3, bubble capsules; trees larger than 24" dbh, with 4 capsules. Place bubble capsules evenly around tree bole; but avoid placing on south side of tree, when practical.